

ABSTRACT

The present embodiments provide methods, apparatuses, and assemblies for use in producing a desired output beam that meets a desired intensity prescription. An apparatus can include an input surface, and an optically active output surface that receives a collimated beam, such that the output surface refractively maps an illuminance distribution of the collimated beam into a prescribed intensity pattern. The apparatus can include a collimating lens that collimates an input beam. Additionally, the output surface can be defined according to a cumulative illumination integral for the illuminance distribution and a cumulative illumination integral of the intensity pattern. Some embodiments provide methods that can determine an illumination integral for an illuminance pattern of an input, determine an intensity prescription, establish a spatio-angular correspondence of the input beam with the intensity prescription, derive surface normal vectors, and determine the output surface according to the surface normal vectors.

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